

AMENDMENTS TO THE CLAIMS:

This listing of claims replaces all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A method comprising:

receiving a user selection of a first instruction from a list of instructions that executed during a processor simulation; and

tracing an operand in the first instruction directly to a use of the operand in a second instruction in the list of instructions by following operand dependencies between such first and second instructions,

wherein tracing comprises using a program counter value to look up attributes of the first instruction in an instruction operand map that provides attributes of each instruction, including instruction type and type of registers used by such instruction type for operands.

2. (Original) The method of claim 1 wherein tracing determines that the second instruction set the value of the operand as used in the first instruction as a source operand.

3. (Original) The method of claim 1 wherein tracing determines that a next use of the operand, after that of the first instruction as a destination operand, occurs in the second instruction.

4. (Currently Amended) The method of claim 1 wherein tracing comprises:
~~determining attributes of the first instruction; and~~
using the attributes of the first instruction to find the second instruction.

5. (Original) The method of claim 4 wherein receiving comprises:
receiving a selected cycle corresponding to the first instruction.

6. (Currently Amended) The method of claim 5 further comprising:
determining ~~a~~ the program counter value associated with the selected cycle.

Claim 7 (Cancelled)

8. (Currently Amended) The method of claim [[7]] 1 wherein the instructions are instructions of a microcode and the instruction operand map is generated at microcode build time

9. (Currently Amended) The method of claim [[7]] 1 wherein using the program counter value to look up attributes comprises:

determining for each register type a physical address.

10. (Original) The method of claim 9 wherein determining the physical address comprises determining whether each register type is a non-I/O register or an I/O register.

11. (Original) The method of claim 10 wherein determining the physical address comprises determining whether each non-I/O register is accessed using an index register.

12. (Original) The method of claim 11 wherein the instruction operand map is used to provide the physical address for each non-I/O register that is not accessed using an index register.

13. (Original) The method of claim 11 wherein the physical address for each non-I/O register that is determined to be accessed using an index register is determined by obtaining a historical value of the index register at the selected cycle from a register history that records historical values of registers for each register type as such values change during simulation.

14 (Previously Presented) The method of claim 12 wherein the physical address for any register determined to be an I/O register is obtained for the selected cycle from a memory

reference history that records physical addresses and reference counts for each of the I/O registers that is used in a memory reference during simulation.

15. (Original) The method of claim 9 wherein determining the program counter value comprises looking up the program counter value in a program counter history that records state change events, which are detected during simulation, with associated program counter values for each cycle in which such state change events occurred.

16. (Original) The method of claim 15 wherein tracing further comprises: using the physical address for each register used in the first instruction to traverse the program counter history, instruction by instruction, to find a matching physical address in the second instruction.

17. (Original) The method of claim 16 wherein the microcode is intended for execution on one or more microengines in a processor simulated by the processor simulation and wherein the program counter history of more than one of the microengines is traversed.

18. (Original) The method of claim 1 wherein the instructions are intended for execution on at least one microengine of the processor simulated by the processor simulation.

19. (Previously Presented) The method of claim 18 wherein the microengine is configured to support multiple threads of execution and the instructions are intended for execution by at least one of the multiple threads of execution.

20. (Previously Presented) An article comprising:
a storage medium having stored thereon instructions that when executed by a machine result in the following:

receiving a user selection of a first instruction from a list of instructions that executed during a processor simulation; and
tracing an operand used in the first instruction directly to a use of the operand in a second instruction in the list of instructions by following operand dependencies between such first and second instructions,

wherein tracing comprises:

determining attributes of the first instruction selected by the user; and
using the attributes of the first instruction selected by the user to find the second instruction,

wherein determining attributes comprises:

using a program counter value to look up the attributes in an instruction operand map that provides attributes of each instruction, including instruction type and type of registers used by such instruction type for operands and to determine for each type of register a physical address.

21. (Original) The article of claim 20 wherein tracing determines that the second instruction set the value of the operand as used in the first instruction.

22. (Original) The article of claim 20 wherein tracing determines that a next use of the operand after that of the first instruction occurs in the second instruction.

23. (Previously Presented) A storage medium having executable instructions stored and configured to be executed by a processor, the executable instructions comprising:

executable instructions to render a window having a view of microcode instructions that executed on a processor simulator during a simulation and for which a simulation history has been collected by the processor simulator;

wherein executable instructions to render a window having the view comprises executable instructions to provide a tracing option in a menu presented to a user for one of the microcode instructions as an instruction of interest, the tracing option being usable to trace any variable used by the instruction of interest in the simulation history directly to a second instruction in which a most recent change to or next use of such variable occurred,

the executable instructions further comprising executable instructions to:

receive a user selection of the instruction of interest; and

trace an operand in the instruction of interest directly to a use of the operand in the second instruction of the microcode instructions by following operand dependencies between the instruction of interest and the second instruction,
wherein executable instructions to trace comprises executable instructions to use a program counter value to look up attributes in an instruction operand map that provides attributes of each instruction, including instruction type and type of registers used by such instruction type for operands and to determine for each type of register a physical address.

24. (Previously Presented) The storage medium of claim 23 wherein selection of the tracing option by the user causes a submenu of options available for the instruction of interest to be provided to the user, each of the options of the submenu corresponding to one of the variables used by the instruction of interest.

25. (Previously Presented) The storage medium of claim 23 further comprising executable instructions to render:

 a second window in which a cycle of interest corresponding to the instruction of interest is indicated;

 wherein the indication of the cycle of interest is modified to indicate a new cycle of interest corresponding to the second instruction; and

 wherein the window is modified to reflect the new cycle of interest.

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Claims 26 and 27 (Cancelled)